Modernisation of meat inspection to prevent zoonotic risks in beef

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ES05: Modernisation of meat inspection for pigs

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The classical zoonotic infections bovine tuberculosis and trichinosis are under control in most parts of the world. However, nowadays important zoonoses caused by e.g. Salmonella and Yersinia cannot easily be dealt with at traditional inspection. It has long been suggested to omit unnecessary palpation and incisions to limit the cross-contamination with Salmonella. However, what would we risk if we stopped the routine palpations and incisions? To address this, three risk assessments were undertaken following international guidelines. We looked at the impact of omitting routine palpation of mandibular and mesenterial lymph nodes and lungs, and the routine opening of hearts.

Data consisted of a comparison study involving 3,000 plucks, own collection of slaughterhouse samples sent for laboratory investigation, slaughterhouse statistics, literature and expert opinion.

The risk assessments show that visual inspection of these lymph nodes is not associated with any increase in risk for consumers. Regarding the heart, some cases of endocarditis will be overlooked. This has no impact on food safety, because the agents involved are not foodborne. For the lungs, it was estimated that 1/5-1/3 of embolic pneumonia cases might be overlooked. This is primarily an aesthetic issue, because of the limited foodborne impact of the involved agents. Still, it is recommended to do what is possible to detect and remove cases indicative of pyaemia including embolic pneumonia. Therefore, in case of doubt plucks should be palpated – or sent to the rework area for extended examination. Continued discussions about meat inspection is needed to ensure maximum food safety for the resources spent.

ES06: Modernisation of meat inspection to prevent zoonotic risks in beef

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Modernisation of meat inspection is up for discussion to ensure that resources are allocated to optimise food safety. Visual inspection is suggested as a way of minimising cross-contamination at slaughter with zoonotic agents, i.e. *Salmonella* and *E. coli*.

In cattle, the masseter muscles are incised routinely to detect the presence of the zoonotic parasite *Cysticercus bovis*. The associated human infection (taeniosis) is unwanted although it does not lead to clinical disease. Would food safety be reduced, if traditional inspection was replaced by visual inspection with respect to *C. bovis* in low-prevalent populations? Are there other ways of inspection that can be just as effective as the traditional approach?

This was investigated in three studies. Data originated from the Danish Cattle Database, the slaughterhouse database, literature and expert opinion. First, a case-control study was undertaken to identify risk factors in Denmark. Subsequently, a study based on register data was conducted to estimate the true prevalence and identify more risk factors for C. bovis. Next, a scenario tree was built to illustrate the effect of various risk-based surveillance programmes. These showed that using gender as a risk factor – and limiting inspection to female cattle – was almost as effective as inspecting all cattle. Gender was interpreted as an indicator for production system, because females are more frequently let on pasture, where they can get exposed to parasite eggs and become infected with *C. bovis*. This approach would save resources that could be spent on other risk mitigating measures improving food safety.